

WHAT IS CLAIMED IS:

1. A radiation imaging apparatus comprising a plurality of spaced apart imaging elements each comprising a plurality of pixels and an external terminal for external connection,

wherein a lead constituting the external terminal is extended to the side opposite to a light receiving surface of each of the spaced apart imaging elements through a space between the adjacent imaging elements;

the external terminal is formed at the same height as a light receiving surface or on the side portion opposite to the incidence side based on the height of the light receiving surface; and

a wavelength converter is formed on the plurality of spaced apart imaging elements and the external terminal through a planarizing layer.

2. A radiation imaging apparatus according to Claim 1, wherein said plurality of spaced apart imaging elements are bonded to a substrate.

3. A radiation imaging apparatus according to Claim 1, wherein said external terminal is formed in the region of one of the plurality of pixels.

4. A radiation imaging apparatus according to Claim 1, wherein the planarizing layer comprises at least one of adhesive and a light transmitting substrate.

5. A radiation imaging apparatus according to Claim 4, wherein the light transmitting substrate comprises one of a fiber optical plate and a lead-containing radiation shielding plate.

6. A radiation imaging apparatus according to Claim 1, wherein each of the plurality of pixels has a CMOS structure.

7. A radiation imaging apparatus according to Claim 6, wherein the CMOS structure comprises a photodiode, a transfer MOS transistor, and an amplification MOS transistor.

8. A radiation imaging apparatus according to Claim 1, wherein the wavelength converter comprises one of a fluorescent material and a scintillator.

9. A radio diagnosis system comprising:
an X-ray tube, a radiation imaging apparatus according to Claim 1, a transmission means to transfer signals from said radiation imaging apparatus, and a display means for

displaying signals output from said radiation imaging apparatus.

10. A radiation imaging apparatus comprising a plurality of spaced apart imaging elements comprising each a plurality of pixels and an external terminal for external connection,

wherein a lead constituting the external terminal is extended to the side opposite to a light receiving surface of each of the spaced apart imaging elements through a space between the adjacent imaging elements;

a first planarizing layer is formed on the light receiving surface to be positioned at the same height as the external terminal or on the incidence side based on the height of the light receiving surface; and

a wavelength converter is formed on the plurality of spaced apart imaging elements through a second planarizing layer formed on the external terminal and the first planarizing layer.

11. A radiation imaging apparatus according to Claim 10, wherein said plurality of spaced apart imaging elements are bonded to a substrate.

12. A radiation imaging apparatus according to Claim

10, wherein said external terminal is formed in the region of one of the plurality of pixels.

13. A radiation imaging apparatus according to Claim 10, wherein said first planarizing layer comprises an organic resin.

14. A radiation imaging apparatus according to Claim 10, wherein the second planarizing layer comprises at least one of a light transmitting substrate and an adhesive.

15. A radiation imaging apparatus according to Claim 14, wherein the light transmitting substrate comprises one of a fiber optical plate and a lead-containing radiation shielding plate.

16. A radiation imaging apparatus according to Claim 10, wherein each of the plurality of pixels has a CMOS structure.

17. A radiation imaging apparatus according to Claim 10, wherein the CMOS structure comprises a photodiode, a transfer MOS transistor, and an amplification MOS transistor.

18. A radiation imaging apparatus according to Claim

10, wherein the wavelength converter comprises a fluorescent material or a scintillator.

19. A radio diagnosis system comprising:

an X-ray tube, a radiation imaging apparatus according to Claim 10, a transmission means to transfer signals from said radiation imaging apparatus, and a display means for displaying signals output from said radiation imaging apparatus.